November/December 1981

Lasca Leaves

Los Angeles County Department of Arboreta and Botanic Gardens

HORTICULTURAL INTERN PROGRAM

EVERYONE INVOLVED agreed that the expanded summer horticultural intern program made possible by a grant from the Institute of Museum Services was a great success this year. Of the 16 students in the program, eight worked at the Los Angeles State and County Arboretum, and four each at Descanso Gardens and South Coast Botanic Garden.

The students arrived at the three Department facilities on July 1 equipped with basic background in theoretical horticultural information and a strong desire to try it in a field situation. By the time they completed their internships Sept. 1 they had added practical experience in all phases of work carried on at public gardens to their previous knowledge of botany and gardening.

Five of the students working at the Arboretum under the direction of John Provine, superintendent, were from California State Polytechnic University, Pomona: Carla Hawke, Hyang Han, Ann Munoz, Denise DePew, and Mike Atkinson. Isabelle Miller attends Mt. San Antonio Community College while Susan Trent studies at California State Polytechnic University, San

Carla Hawke (left) and Ann Munoz dig a trench for the sprinkler system east of the Hall of Environmental Education. Photos by LuAnn Munns.

Luis Obispo and Mamie Mitchel returned to Loma Linda University this fall.

Interns at South Coast included El Camino Community College students Lori Gates and Walter Medina. Dolores Perez is from California Polytechnic University, Pomona and Keji Niya attends Harbor College.

The Descanso Gardens team included the only non-collegian, James Argu who began his senior year at San Marino High School this fall. The other Descanso interns were Joy Parker, a student at the University of Southern California, and California Polytechnic University Pomona students Gail Panza and Monica Wren.

Most of the interns earn college credit for their work with the Department so assignments were carefully planned to be an educational experience benefiting the students while at the same time providing valuable extra manpower for the Department. At South Coast the interns attended a three-hour propagation workshop each week and at both South Coast and Descanso they practiced fruit tree pruning procedures and the principles of grafting.

The teams rotated through the grounds operating mowing and edging machines, learning about the selection and application of chemical weed controls, and pruning, among other tasks. In the greenhouse they practiced preparing soil for seed, transplanting, and caring for tropical plants.

Besides familiarizing themselves with equipment and work common in all public gardens, the students at each Department facility participated in at least one special project. "We wanted them to be responsible for developing a permanent feature so years later they can come back and see that their efforts really had a positive effect at the gardens," explained Mike Marshall who supervised the intern program at Descanso Gardens.

From left, Susan Trent, Denise DePew, Mamie Mitchell, and Mike Atkinson work as a team installing a path border in the Garden for All Seasons.

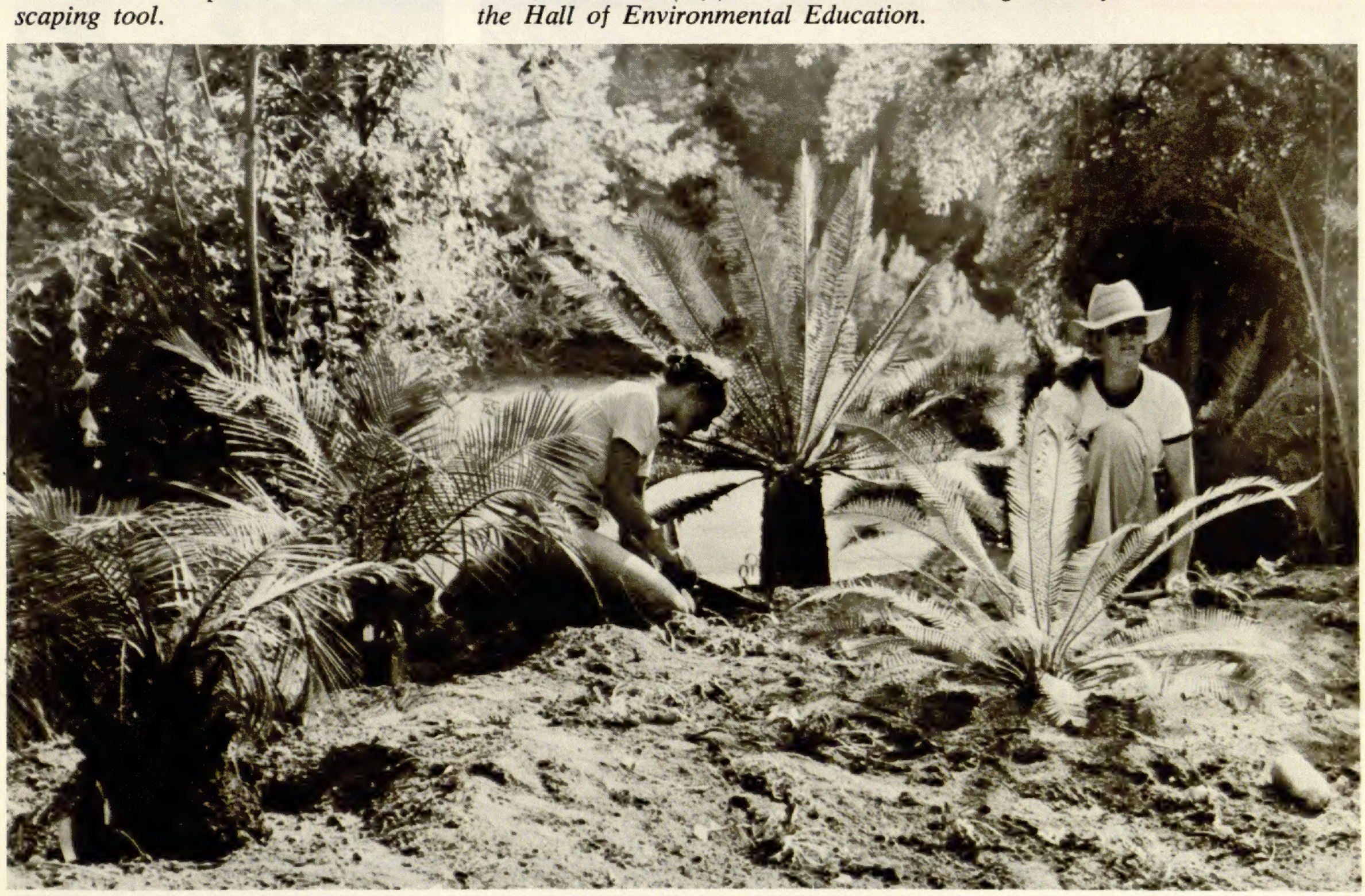
At Descanso Gardens they planted 4-foot redwood trees on a berm near the bird observation house and prepared the ground in the grove for understory plantings of rhododendrons and azaleas. They also put in many new plants to upgrade the area around the Japanese teahouse. The South Coast interns completed landscaping of the new shade garden by the tram waiting area and spent one week modifying aquatic plant growth at the stream. By removing excess cattails and rechanneling the water they accelerated water movement to minimize algae growth.

Development of the area around the Hall of Environmental Education at the Arboretum provided the interns with a perfect outdoor laboratory for exercising basic landscape architecture techniques. When the interns began, the roughly graded ground was just as the building contractor had left it. By the time they honed their skills at trenching, rototilling, grading, and installation of the irrigation systems, the strip beside the parking lot was completely landscaped and the area on the west side of the building was ready for planting. This project gave the interns their first hands-on experience using the trencher which, like the other equipment routinely used on large landscaping jobs, was familiar only from classroom lectures. They also used chain saws and drills when they built borders from railroad ties in the Garden for All Seasons.

The enthusiasm and energy of the 1981 interns impressed everyone who worked with them. "This has been a great bunch," said Ed Hartnagel, South Coast assistant superintendent. "They have participated in every phase of the work here and

Isabelle Miller operates a basic landscaping tool.

Mamie Mitchell (left) stabilizes the trencher guided by Susan Trent west of the Hall of Environmental Education.



Denise DePew (left) and Carla Hawke plant capeweed (Arctotheca calendula) *around the cycads that students planted in a renovated area of the Jungle and Prehistoric Garden during the summer internship program.*

Mike Atkinson hoses down the newly planted cycads.

seldom missed a day during the whole program."

The Arboretum interns quickly dispelled any doubts the staff supervisors might have had about the ability of the predominantly female group to handle their physically demanding assignments. They worked steadily while temperatures hovered in the upper 90s throughout most of July. In only one week the teams cleared an overgrown section in the Jungle and Prehistoric Garden, built mounds, and planted 24 large cycads donated by Loran Whitelock, E. D. Shellenberger, and the University of Chicago.

The Institute of Museum Services made the grant for the intern program on a one-time only basis. Because the program proved so beneficial to both the students and the hard-pressed ground crews at all three gardens, Director Francis Ching has begun a search for funds with which to repeat the program in 1982.

IMS, a division of the U.S. Department of Education, supports a variety of institutions including art, history, natural history, and general and specialized museums as well as aquariums, botanical gardens, planetariums, science-technology centers, and zoos. The Institute's grants are designed to help developing and established cultural institutions meet the financial pressures caused by escalating costs, increased energy requirements, and the demands made by the more than 350 million visitors annually to approximately 5,500 museums in the nation. IMS grants also serve as a form of national recognition of an institution's activities. That recognition can be a big incentive to raising funds from the private and corporate sectors.

Team members (from left) Ann Munoz, Carla Hawke, Isabelle Miller, and Hyang Han level ground along the parking lot for a railroad tie edging.

Mamie Mitchell (left) and Carla Hawke plant a dwarf oleander.

(LASCA continues after page 32)

LINDENS

by Leonid Enari

ZEUS, THE GREEK GOD of the heavens, accompanied by Hermes, the god of communication, commerce, thievery, eloquence, research and science, once visited earth in human disguise. When they sought shelter for the night after long travel, their request was denied again and again until finally an old couple, Philemon and Baucis, offered them hospitality in their humble cottage.

Before the gods departed the next morning, they revealed their identities and asked what the couple wanted most. Their only wish, that neither husband nor wife would survive the other, was granted. To punish those who had shut their doors against the gods, the country was flooded. The only cottage left standing after the waters receded was that of the couple. The gods transformed it into a magnificent temple and appointed Philemon and Baucis priest and priestess to act as intermediaries between the gods and people in their new home.

Years went by and there came a day when Philemon and Baucis, stepping out of the temple into the morning light, knew that they never would see the sun again through human eyes for on the head of each was a crown of leaves, not newly

A 27-year-old silver linden (Tilia tomentosa) *grows near the upper lagoon at the Los Angeles State and County Arboretum.*

placed but growing. They realized that their hour had come. Embracing each other for the last time, holding each other's hands and facing the rising sun, they saw their bent and withered bodies pass into the forms of trees ascending higher and higher and unfolding their crowns in the sky. For ages these two majestic trees, two lindens, stood in front of the temple as living monuments to man's sacred duty of hospitality. Something of the human spirit lingered in the trees and the local soothsayers turned to them when they were to prophesy and twined their leaves about their fingers when they sought inspiration.

This much-repeated colorful story, of course, is only a legend whose roots reach into a distant past, when gods were closer to mortals and did not mind intermingling with them.

Lindens are large or medium-sized deciduous trees native to the entire northern temperate zone, except western North America. The genus contains approximately 30 species and is easy to recognize. To tell closely related species apart from each other, however, is not always a simple task. The leaves of the lindens are simple, ovate or cordiform, asymmetrical, toothed, petioled, alternate and often two-ranked. Flower-clusters are made up of from two to 30 small, whitish or yellowish, fragrant flowers. Each flower has five sepals, five petals, many stamens and one pistil. The stamens are distinct or in five fascicles opposite the petals. The lower part of the stalk of the flower-cluster or fruit-cluster is united to the midrib of a large membranaceous bract. Fruits are dry, indehiscent, one-, two-, or three-seeded, nutlike, and globose or ovoid in shape.

To non-botanists one of the most characteristic features of the linden is the aroma of its flowers. The unbelievably strong and sweet scent, different from any other fragrance we know, penetrates the brain and

Leaves and fruit-cluster of silver linden (Tilia tomentosa) — *The lower part of the stalk of the fruit-cluster is united to the midrib of a large membranaceous bract, a characteristic of all linden species. Photos by William Aplin.*

forces the memory of those who recognize it to travel back into the past. To many of us it brings back the soaring wail of the tree toads, the first fireflies in the dusk, the black carpenter bees trying to balance themselves on the linden flowers, the banging of June beetles on window screens, the limpness of the flags on the Fourth of July and all that is a boy's eye view of those nothing-to-do, weary first days of vacation from school.

George N. Jones in his *Taxonomy of American Species of Linden (Tilia)* (Illinois Biological Monographs 39, 1968) recognizes three species as being indigenous to North America, of which American linden or basswood *(Tilia americana)* is the best known. American linden occurs in every state east of the Mississippi River and in the eastern portion of the states lying next to that river on the west. It prefers rich, moist loamy bottom land soils and is commonly associated with eastern hemlock, red maple, northern red oak, sugar maple, white ash, yellow birch, black cherry, American elm, and other hardwoods and conifers. It seldom grows in pure stands, and when so found is limited to small areas.

Lindens 100 feet or more in height are reported in the United States and

in Europe, but their number is very small. Old trees are frequently hollow, and in many cases their heartwood is found to be entirely decayed for a portion of its height. However, the trees are still growing, showing that the only function the heartwood performs is to support the trunk and crown against the wind.

Wood of the linden is white, close-grained, soft, light, and free from knots. It is used for making carriage bodies, cheap furniture, panels, woodenware, packing cases, inner soles for shoes, shoemaker's and glover's planks, toys, and other articles where strength and durability are not required. It is a wood-carver's delight and is preferred by them to all other woods. Many of the fine carvings in Windsor castle, Trinity College Library at Cambridge, and in the Duke of Devonshire's mansion of Chatsworth are of this wood.

Linden is not the only name for the tree in the English language. Called lime in England and basswood in some areas of the United States, it is Linde in German, linde in Dutch, lind in Swedish, lipa in Russian and Polish, tilleul in French, and tiglio in Italian. Lind, Lindahl, Lindauer, Lindberg, Lindblad, Lindblom, Lindborg, Linde, Lindeman, Lindemayer, Linden, Lindenberg, Lindenblatt, Lindgren, Lindholm, Lindhurst, Lindman, Lindquist, Lindsey, and many other similar surnames found in every telephone directory in Germany, Holland, Sweden, Norway, Denmark, England, and other countries where Germanic-speaking people have established homes, can all be traced back to the linden tree. Carolus Linnaeus, the most widely known botanist of modern times, was also born with a botanical name, only his was Latinized. The name was coined by Carolus' father, Nils Ingemarsson, a clergyman in Rashult, Sweden, who changed his name to Nils Linnaeus, referring to a large old linn tree on Linnegard, the family property. Linn is the name of the linden in some Germanic dialects. It was Carolus Linnaeus who established the genus *Tilia* that includes all of the species of lindens. It was also he who gave the botanical name *Tilia americana* to the American linden.

The linden has long been a favorite tree for streets, avenues, and public parks in Europe. The French, English, Germans, and Dutch started planting the linden in the time of Louis XIV, when they grew tired of the horse chestnut. The Dutch even planted it on the sides of their canals. Since then many streets and even cities have become known for the lindens they have. Unter den Linden in Berlin is one of the very few city streets known all over the world and Linden, a city in New Jersey, owes its name to its linden trees brought from Germany.

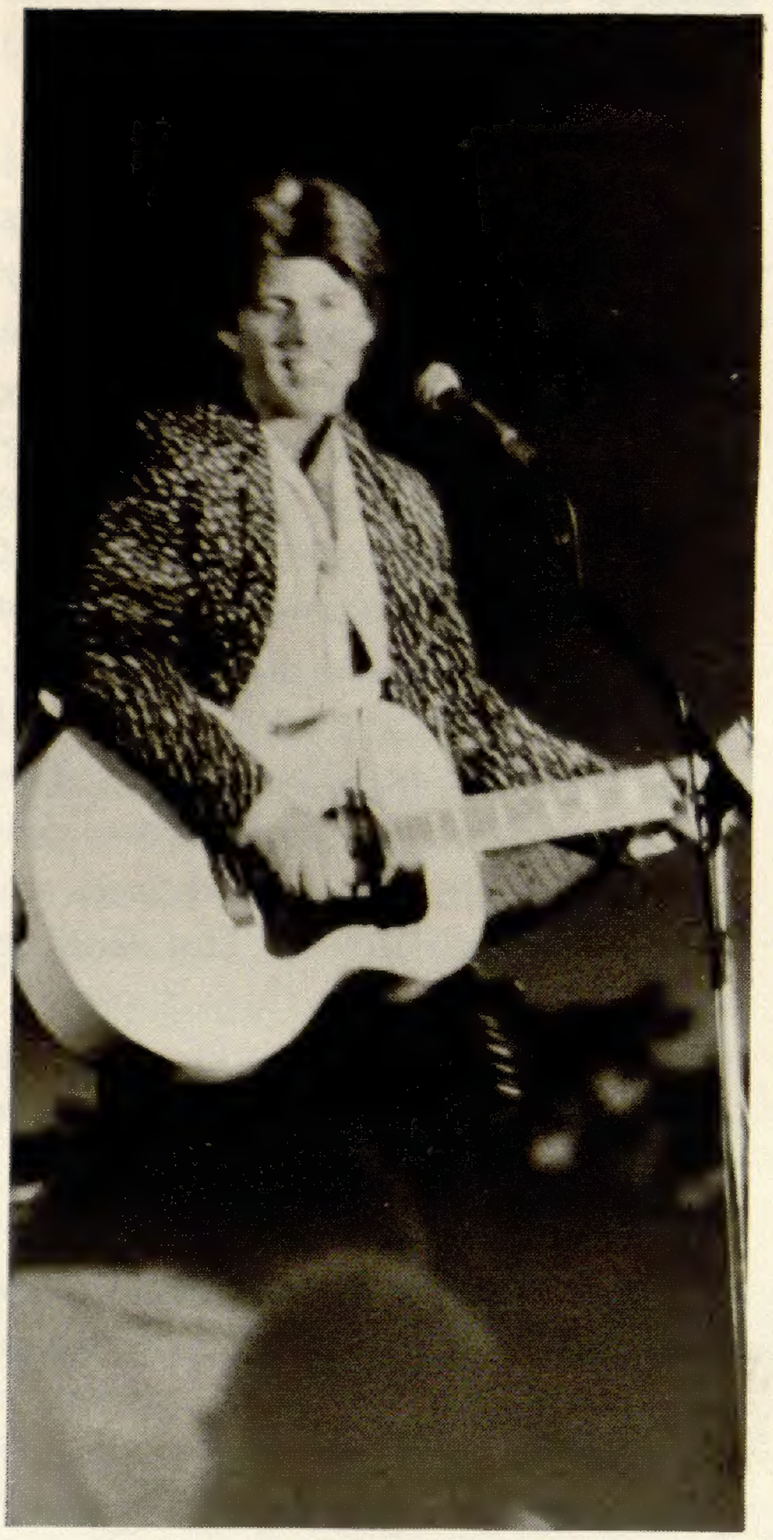
In landscape gardening the principal use of the linden is as a detached tree on the lawn. It harmonizes well with the immense masses of Grecian or Roman architecture, but is less suitable for the narrow, perpendicular forms of the Gothic. It bears cutting, pruning, and shearing and is therefore well adapted for architectural gardens. In some of the public gardens in France and Holland, there are imposing colonnades, arcades, walls, pyramids, and other structural-looking masses formed from this tree.

Of all the species of lindens, the most beautiful is the silver linden *(Tilia tomentosa)* with its two-colored leaves green on the upper surface and silvery-white on the under surface. It is a sight to watch the wind playing with its leaves on a windy day and turning its foliage into story-land green and silver. Of all the lindens it is also best adapted to Southern California growing conditions including drought, heat, and smog. The tree is well worth planting beside the front door, where, in years to come, it will offer its deep, cool shade to the inhabitants of the house and to the house itself.

Linden trees should be raised from seed whenever possible. Seeds collected from trees just as they turn completely brown and then planted immediately usually germinate well. Seeds left on the tree until they start to drop may lie in the ground two years or more without any perceptible change. Desirable forms and varieties may be multiplied by grafting, but this method often results in misshapen trees. The graft is taken, as a rule, from side branches with the two-ranked arrangement of leaves. The leading shoot often retains this characteristic for many years and shows a tendency to grow horizontally rather than erect.

In the Los Angeles State and County Arboretum collections the genus is represented by five species. Amur linden *(Tilia amurensis)* from Manchuria and Korea, now 15 years old, can be seen in quadrat K/15; small-leaved European linden *(T. cordata)* from Europe, 7 years old, is planted in quadrats K/12 and L/12; Caucasian linden *(T. dasystyla)* from southeast Europe, Caucasia and Iran, 30 years old, grows in quadrat K/13; white linden or basswood *(T. heterophylla)* from southeast United States, 27 years old, tries to adapt itself to the Southern California climate in quadrat I/8; and silver linden *(T. tomentosa)* from southeast Europe, 30 years old, enjoys the California environment in quadrat K/12. Another silver linden three years younger is in quadrat J/12. The latter is worth seeing and may even change the thinking of those who cannot find a place for a deciduous tree in seasonless Southern California.

Dr. Leonid Enari is a senior biologist and staff taxonomist.



Rick Nelson entertained at the Arboretum July 12.

More than 4,000 people crowd the Arboretum grounds for Rick Nelson's Picnic in the Park summer concert.

CALENDAR

NOVEMBER, DECEMBER 1981, JANUARY 1982

LOS ANGELES STATE AND COUNTY ARBORETUM, Arcadia

OCTOBER 31, NOVEMBER 1 — 9 a.m. to 4:30 p.m.
Novice Bonsai Show
Santa Anita Bonsai Society**

NOVEMBER 14, 15 — Saturday 10 a.m. to 4:30 p.m. Sunday 10 a.m. to 3 p.m.
Koi Show
Ikeru Hoseki Koi Club**

NOVEMBER 21 thru 29 — NOV. 21 — 10 a.m. to 8 p.m. NOV. 22-29 — 10 a.m. to 5 p.m.
Santa Anita Flora and Garden Exposition*

DECEMBER 12, 13 — Sat. 1 to 4:30 p.m. Sunday 9 a.m. to 4:30 p.m.
Camellia Show
So. California Camellia Council**

JANUARY 9 thru 17 — Weekends 9 to 4:30 p.m. Weekdays 1 to 4:30 p.m.
Suiseki Biseki Saikei Show**
Various Oriental Art Forms

JANUARY 23, 24 — 9 a.m. to 4:30 p.m.
Bonsai Show
Baiko-en Kenkyukai Society**

*Sponsored by California Arboretum Foundation
**Cosponsored by California Arboretum Foundation

DESCANSO GARDENS, La Canada

OCTOBER 31, NOVEMBER 1 — 9 a.m. to 4:30 p.m.
Chrysanthemum Show
Glendale Chrysanthemum Society**

DECEMBER 5 thru 13—10 a.m. to 4 p.m.
Christmas Tree Celebration Show*

JANUARY 9 — 12 to 4 p.m.
Rose Pruning Demonstration*

*Sponsored by Descanso Gardens Guild
**Cosponsored by Descanso Gardens Guild

SOUTH COAST BOTANIC GARDEN, Palos Verdes Peninsula

NOVEMBER 1 — 2 p.m.
Talk — Landfills, gardens and land reclamation*
Steve Maguin, L.A. County Sanitation District

NOVEMBER 8 — 2 p.m.
Talk — Replanting Trees*
Andy Lipkis, Tree People

NOVEMBER 15 — 2 p.m.
Demonstration — How to make Christmas wreaths*
Suzy Seamans

NOVEMBER 29 — 2 p.m.
Talk — Perennial Plants*
Nancy Dick, Sweet Springs Perennial Growers

DECEMBER 6 thru 13—11 a.m. to 4 p.m.
Yule-Tide Greetings from Near & Far*
Christmas Show

JANUARY 10 — 2 p.m. to 4 p.m.
Rose Pruning Demonstration*
South Coast Botanic Garden Staff

JANUARY 17 — 1 p.m. to 4 p.m.
Fruit Tree Pruning Demonstration*
South Coast Botanic Garden Staff

*Sponsored by South Coast Botanic Garden Foundation
**Cosponsored by South Coast Botanic Garden Foundation